



**2020 Capitalization Rate Study
Railroads**

FINAL

Completed: April 28, 2020

MONTANA DEPARTMENT OF REVENUE

Yield Capitalization Rate Conclusion

Industry: Railroads

2020 Assessment Year

Capital Structure ^[1]

Equity	80.00%
Debt	20.00%

Equity Cost of Capital

		Weighting
Capital Asset Pricing Model - Ex Post ^[2]	10.83%	35%
Capital Asset Pricing Model - Ex Ante ^[2]	8.49%	35%
3 Stage Dividend Discount Model - Dividends ^[3]	6.50%	15%
3 Stage Dividend Discount Model - Earnings ^[3]	7.90%	15%
Weighted Average	8.92%	100%
Selected Cost of Equity	<u>8.90%</u>	

Debt Cost of Capital

		Weighting
A - Mergent's - Avg. YTM of A Rated Corporate Bonds ^[4]	3.36%	0%
Baa - Mergent's - Avg. YTM of Baa Rated Corporate Bonds ^[4]	3.88%	100%
Ba - MTDOR - Avg. YTM of Ba Rated Corporate Bonds ^[5]	6.58%	0%
Weighted Average	3.88%	100%
Selected Cost of Debt	<u>3.90%</u>	

Weighted Average Cost of Capital (WACC)

Source of Capital	Capital Structure	Cost of Capital	Marginal Tax Rate	After-tax Cost of Capital	Weighted Cost
Equity	80.00%	8.90%		8.90%	7.12%
Debt	20.00%	3.90%	24.00%	2.96%	0.59%
WACC	100.00%				7.71%
WACC (Rounded)					7.80%

Notes

[1] From worksheet: Capital Structure

[2] From worksheet: Capital Asset Pricing Model Summary

[3] From worksheet: Yield Equity Summary

[4] January 2020, Mergent Bond Record

[5] Montana Department of Revenue High Yield Debt Study

MONTANA DEPARTMENT OF REVENUE

Direct Capitalization Rate Conclusion

Industry: Railroads

2020 Assessment Year

Capital Structure ^[1]

Equity	80.00%
Debt	20.00%

Equity Capitalization Rate ^[2]

NOI After-tax	5.30%
GCF	7.20%

Debt Capitalization Rate ^[3]

Calculated Current Yield	4.25%
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NOI After-tax Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	80.00%	5.30%		5.30%	4.24%
Debt	20.00%	4.25%	24.00%	3.23%	0.65%
Total	100.00%				4.89%
Total (Rounded)					4.90%

GCF Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	80.00%	7.20%		7.20%	5.76%
Debt	20.00%	4.25%	24.00%	3.23%	0.65%
WACC	100.00%				6.41%
Total (Rounded)					6.50%

Notes:

[1] From worksheet: Capital Structure

[2] From worksheet: Direct Equity Summary

[3] From worksheet: Calculated Current Yield

MONTANA DEPARTMENT OF REVENUE

Selection of Guideline Companies

Industry: Railroads

2020 Assessment Year

Screening Requirements:

The universe of companies is all companies listed in Value Line under the Railroad industry.

Companies were then selected using the following screening criteria:

1. Primarily provides rail, intermodal transportation, and rail-to-truck transload services.
2. Actively traded on an American exchange.
3. Headquartered / incorporated in the United States
4. No significant merger & acquisition activity during the year.

Company Ticker	Primarily provide rail services	Actively Traded on an American Exchange	Headquartered/Incorporated in the U.S.	Consider as Potential Guideline Company	Not Engaged in Material M&A Activity	Use as Guideline Company	Note
CNI			No				
CP			No				
CSX	Yes	Yes	Yes	Yes	Yes	Yes	
GATX	No						
GBX	No						
KSU	Yes	Yes	Yes	Yes	Yes	Yes	
NSC	Yes	Yes	Yes	Yes		Yes	
RAIL	No						
TRN	No						
UNP	Yes	Yes	Yes	Yes	Yes	Yes	
USDP	No						
WAB	No						

MONTANA DEPARTMENT OF REVENUE

Support for Capital Structure

Industry: Railroads

2020 Assessment Year

(\$ and Shares Outstanding In Millions, Except Per Share Amounts)

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker	Company	Industry Group	Financial Strength	Shares Outstanding	End of Year Closing Stock Price	MV Common Stock	MV Preferred Stock	MV Long Term Debt	PV of Operating Leases	Total Common, Preferred, LT Debt, & Op Leases	% Common	% Preferred	% Debt & Op Leases
		Value Line	Value Line	10-K	Yahoo	ExF	10-K	10-K	10-K	G+H+I+J	G/K	H/K	(I+J)/K
							[Note 1]	[Note 2]					
CSX	CSX Corp.	RAILROAD	B++	774	72.36	55,994	0	18,503	550	75,047	75%	0%	25%
KSU	Kansas City South'n	RAILROAD	A	96	153.16	14,721	6	3,536	131	18,393	80%	0%	20%
NSC	Norfolk Southern	RAILROAD	A+	258	194.13	50,067	0	14,806	538	65,411	77%	0%	23%
UNP	Union Pacific	RAILROAD	A++	692	180.79	125,125	0	27,200	1,833	154,158	81%	0%	19%
All Companies						245,907	6	64,045	3,052	313,009	79%	0%	21%
Average											78%	0%	22%
Median											78%	0%	22%
High											81%	0%	25%
Low											75%	0%	19%
Selected											80%		20%

Notes

[1] Market value of preferred stock assumed to equal book value

[2] Market value of debt is fair value of long term debt from 10-K notes

MCA 15-1-210, rationale for changes to guideline companies:

2020 - Removed CP, not incorporated in U.S.

2020 - Removed GWR, no longer publicly traded.

TY 2020 Median	78%	0%	22%
TY 2019 Median	77%	0%	23%
TY 2018 Median	77%	0%	23%
3YR AVG	77%	0%	23%

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Railroads

2020 Assessment Year

$$k_e = R_f + \beta \times ERP$$

		<i>Ex Post</i>	<i>Ex Ante</i>
$k_e =$	Cost of Equity	10.83%	8.49%
$R_f =$	Risk Free Rate	2.25%	2.25%
$\beta =$	Beta	1.20	1.20
$ERP =$	Equity Risk Premium ($R_m - R_f$)	7.15%	5.20%
$R_m =$	Market Rate of Return	9.40%	7.45%

Risk Free Rate Measures (R_f):

The Value Line Investment Survey: Selection & Opinion^[1]

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Selected Yields on Taxable U.S. Treasury Securities as of 12/24/19

10-year	1.90%
30-year	2.33%

Federal Reserve Statistical Release^[2] and U.S. Department of the Treasury, Daily Treasury Yield Curve Rates^[3]

U.S. government securities, Treasury constant maturities, Nominal, December 31, 2019

10-year	1.92%
20-year	2.25%
30-year	2.39%

Risk Free Rate Selected

2.25%

Notes

[1] "Value Line Selection & Opinion", Value Line (January 3, 2020)

[2] <https://www.federalreserve.gov/datadownload/Choose.aspx?rel=H.15>

[3] <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/>

Ex Post - Equity Risk Premium Measures ($ERP = R_m - R_f$)

Duff & Phelps, 2020 Cost of Capital Navigator

		R_m ^[4]	R_m	R_f	ERP
ERP "Historical" - <i>Ex Post</i>	Arithmetic Avg.	9.40%	9.40%	2.25%	7.15%
ERP "Supply-side" - <i>Ex Post</i>	Arithmetic Avg.	8.42%	8.42%	2.25%	6.17%
Ex Post Equity Risk Premium Selected		9.40%		2.25%	7.15%

Ex Ante - Equity Risk Premium Measures ($ERP = R_m - R_f$)

DOR 3 Stage Dividend Growth Model, S & P 500, See Exhibit

	R_m ^[4]	R_m	R_f	ERP
ERP - <i>Ex Ante</i>	7.35%	7.35%	2.25%	5.10%

Duff & Phelps, 2020 Cost of Capital Navigator

	R_m ^[4]	R_m	R_f	ERP
ERP "Conditional" - <i>Ex Ante</i>		8.00%	3.00%	5.00%

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Railroads

2020 Assessment Year

$$k_e = R_f + \beta \times ERP$$

Damodaran Implied ERP (Jan 8, 2020)

	<u>R_m</u> ^[4]	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
Implied Premium (FCFE) - <i>Ex Ante</i>	7.45%	7.12%	1.92%	5.20%
Implied Premium (FCFE with sustainable payout) - <i>Ex Ante</i>	7.31%	6.98%	1.92%	5.06%

	<u>R_m</u> ^[4]	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
<u>Average</u>	7.37%	7.36%		5.09%
<u>Median</u>	7.35%	7.24%		5.08%
<u>High</u>	7.45%	8.00%		5.20%
<u>Low</u>	7.31%	6.98%		5.00%

Equity Risk Premium Selected

7.45%	2.25%	5.20%
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Notes

[4] R_m estimated using selected Risk Free Rate (R_f)

MONTANA DEPARTMENT OF REVENUE

Support for Beta Selection in CAPM

Industry: Railroads

2020 Assessment Year

A	B	C	D	E
Ticker	Company	Industry Group	Financial Strength	Beta
		<i>Value Line</i>	<i>Value Line</i>	<i>Value Line</i>
CSX	CSX Corp.	RAILROAD	B++	1.25
KSU	Kansas City South'n	RAILROAD	A	1.10
NSC	Norfolk Southern	RAILROAD	A+	1.20
UNP	Union Pacific	RAILROAD	A++	1.15
Average				1.18
Median				1.18
High				1.25
Low				1.10
Selected				1.20

MONTANA DEPARTMENT OF REVENUE

Inflation & Real Growth
Industry: Railroads
2020 Assessment Year

A	B	C	D	Nominal Growth	
				E	F
Source Description	Inflation (CPI)	Real Growth (GDP)	Nominal Growth	Low	High
Livingston Survey ^[1]	2.19%	2.14%	4.33%		
Survey of Professional Forecasters ^[2]	2.23%	2.03%	4.26%		
Congressional Budget Office ^[3]	2.40%	2.20%	4.60%		
Average	2.27%	2.12%	4.40%		
Median	2.23%	2.14%	4.37%		
High	2.40%	2.20%	4.60%		
Low	2.19%	2.03%	4.22%		
Selected	2.20%	2.20%	4.40%	4.22%	4.60%

Inflationary Trend Factors						
Year	Dec. CPI-U Index	Percent Change From Previous	Dec. to Dec. Conversion Factor	Annual Avg. CPI-U Index	Percent Change From Previous	Annual Conversion Factor
	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>
2007	210.036		1.2235	207.342		1.2330
2008	210.228	0.1%	1.2224	215.303	3.7%	1.1874
2009	215.949	2.6%	1.1900	214.537	-0.4%	1.1917
2010	219.179	1.5%	1.1724	218.056	1.6%	1.1724
2011	225.672	2.9%	1.1387	224.939	3.1%	1.1366
2012	229.601	1.7%	1.1192	229.594	2.0%	1.1135
2013	233.049	1.5%	1.1027	232.957	1.4%	1.0974
2014	234.812	0.8%	1.0944	236.736	1.6%	1.0799
2015	236.525	0.7%	1.0865	237.017	0.1%	1.0786
2016	241.432	2.0%	1.0644	240.007	1.2%	1.0652
2017	246.524	2.1%	1.0424	245.120	2.1%	1.0430
2018	251.233	1.9%	1.0229	251.107	2.4%	1.0181
2019	256.974	2.2%	1.0000	255.657	1.8%	1.0000

Notes

[1] Federal Reserve Bank of Philadelphia The Livingston Survey December 13, 2019 Table 3 Inflation Rate and Real GDP mean

<https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey>

[2] Federal Reserve Bank of Philadelphia Survey of Professional Forecasters February 14, 2020 Table 8 and Table 9 Average over next 10-Year mean

<https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/2020/survq120>

[3] Congressional Budget Office, The Budget and Economic Outlook: 2020 to 2030, Table 2-1

<https://www.cbo.gov/about/products/budget-economic-data#4>

[5] Historical Consumer Price Index for All Urban Consumers (CPI-U): U.S. city average, all items, index averages (1982-84=100, unless otherwise noted)

<https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-202001.pdf>

[6] (Row year - Previous Year) / Row Year

[7] Most current year / Row year

MONTANA DEPARTMENT OF REVENUE

3 Stage Dividend Discount Model (DDM)

Industry: Railroads

2020 Assessment Year

$$k_e = (D_1 / P_0) + g$$

k_e = Cost of Equity

D_1 = Expected Dividend

P_0 = Current Price Per Share

g = Sustainable Long-Term Growth

A	B	C	D	E	F	G	H	I
Ticker	Company	2019 Year End Stock Price	2020 Est Div'ds Decl'd per sh	Expected Equity Payout Yield	Sustainable Long-Term Growth Rate ^[1]	Sustainable Long-Term Growth Rate ^[1]	Cost of Equity Dividend Growth	Cost of Equity Earnings Growth
		<i>Yahoo</i>	<i>Value Line</i>	<i>D/C</i>	<i>Dividends</i>	<i>Earnings</i>	<i>E+F</i>	<i>E+G</i>
		P_0	D_1	D_1/P_0	g	g	k_e	k_e
CSX	CSX Corp.	72.36	1.04	1.44%	5.26%	5.95%	6.70%	7.39%
KSU	Kansas City South'n	153.16	1.60	1.04%	5.08%	5.57%	6.13%	6.61%
NSC	Norfolk Southern	194.13	3.94	2.03%	4.51%	6.98%	6.54%	9.01%
UNP	Union Pacific	180.79	4.04	2.23%	4.40%	6.40%	6.64%	8.64%
Average							6.50%	7.91%
Median							6.59%	8.01%
High							6.70%	9.01%
Low							6.13%	6.61%
Selected							6.50%	7.90%

Notes

[1] From worksheet: DDM Sustainable Long-Term Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Short Term Growth Rate Calculations

Industry: Railroads

2020 Assessment Year

A	B	C	D	E	F	G
Ticker	Company	End of Year Closing Stock Price	Div'ds Decl'd per sh 2020 Est	Expected Dividend Yield	Div'ds Decl'd per sh 2023-2025 Est	Short-Term Growth Rate
		<i>Yahoo</i>	<i>Value Line</i>	<i>D / C</i>	<i>Value Line</i>	<i>Note [1]</i>
CSX	CSX Corp.	72.36	1.04	1.44%	1.40	7.71%
KSU	Kansas City South'n	153.16	1.60	1.04%	2.16	7.79%
NSC	Norfolk Southern	194.13	3.94	2.03%	4.75	4.79%
UNP	Union Pacific	180.79	4.04	2.23%	4.80	4.40%

A	B		C		D	E
Ticker	Company		Earnings per share 2020 Est		Earnings per share 2023-2025 Est	Short-Term Growth Rate
			<i>Value Line</i>		<i>Value Line</i>	<i>Note [1]</i>
CSX	CSX Corp.		4.10		5.95	9.76%
KSU	Kansas City South'n		8.00		11.55	9.62%
NSC	Norfolk Southern		11.05		16.80	11.04%
UNP	Union Pacific		9.35		13.45	9.52%

Notes

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Railroads

2020 Assessment Year

Dividend Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Dividend Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1:D_{500}$	$g = IRR - Div. Yield$						
CSX	CSX Corp.	72.36	7.71%	4.40%	1.44%	6.70%	5.26%	(72.36)	1.04	1.12	1.21	1.30	1.40
KSU	Kansas City South'n	153.16	7.79%	4.40%	1.04%	6.13%	5.08%	(153.16)	1.60	1.72	1.86	2.00	2.16
NSC	Norfolk Southern	194.13	4.79%	4.40%	2.03%	6.54%	4.51%	(194.13)	3.94	4.13	4.33	4.53	4.75
UNP	Union Pacific	180.79	4.40%	4.40%	2.23%	6.64%	4.40%	(180.79)	4.04	4.22	4.40	4.60	4.80

Earnings Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Earnings Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1:D_{500}$	$g = IRR - Div. Yield$						
CSX	CSX Corp.	72.36	9.76%	4.40%	1.44%	7.39%	5.95%	(72.36)	1.04	1.14	1.25	1.38	1.51
KSU	Kansas City South'n	153.16	9.62%	4.40%	1.04%	6.61%	5.57%	(153.16)	1.60	1.75	1.92	2.11	2.31
NSC	Norfolk Southern	194.13	11.04%	4.40%	2.03%	9.01%	6.98%	(194.13)	3.94	4.38	4.86	5.39	5.99
UNP	Union Pacific	180.79	9.52%	4.40%	2.23%	8.64%	6.40%	(180.79)	4.04	4.42	4.85	5.31	5.81

Notes

[1] From worksheet: DDM Short Term Growth Rate Calculations

[2] From worksheet: Inflation & Real Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Railroads

2020 Assessment Year

Dividend	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
CSX	1.50	1.62	1.74	1.87	2.01	2.16	2.32	2.50	2.68	2.88	3.10	3.33	3.58	3.85	4.14	4.32	4.51	3,918,280,455
KSU	2.32	2.50	2.69	2.89	3.11	3.35	3.60	3.87	4.16	4.48	4.82	5.18	5.57	6.00	6.45	6.73	7.03	6,106,143,416
NSC	4.98	5.21	5.46	5.72	5.99	6.28	6.58	6.89	7.22	7.56	7.92	8.30	8.69	9.11	9.54	9.96	10.40	9,032,897,233
UNP	5.01	5.23	5.46	5.70	5.95	6.22	6.49	6.78	7.07	7.39	7.71	8.05	8.40	8.77	9.16	9.56	9.99	8,673,425,430

Earnings	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
CSX	1.65	1.81	1.98	2.16	2.37	2.59	2.83	3.10	3.39	3.71	4.05	4.44	4.85	5.31	5.81	6.06	6.33	5,498,857,145
KSU	2.52	2.76	3.01	3.29	3.60	3.93	4.30	4.69	5.13	5.60	6.12	6.69	7.31	7.99	8.73	9.11	9.52	8,265,112,957
NSC	6.63	7.33	8.10	8.96	9.91	10.96	12.13	13.41	14.83	16.40	18.14	20.07	22.19	24.55	27.15	28.34	29.59	25,701,294,488
UNP	6.34	6.93	7.56	8.26	9.01	9.84	10.74	11.73	12.81	13.98	15.26	16.66	18.19	19.86	21.68	22.64	23.63	20,529,424,135

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Rate - Debt Rating

Industry: Railroads

2020 Assessment Year

A	B	C	D	E	F
Ticker	Company	Industry Group	Financial Strength	Moody's Long Term Rating	Numeric Rating
		<i>Value Line</i>	<i>Value Line</i>	<i>Moodys.com</i>	
CSX	CSX Corp.	RAILROAD	B++	Baa1	8
KSU	Kansas City South'n	RAILROAD	A	Baa2	9
NSC	Norfolk Southern	RAILROAD	A+	Baa1	8
UNP	Union Pacific	RAILROAD	A++	Baa1	8
Average					8
Median					8
High					9
Low					8
Selected				Baa1	8

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Equity Capitalization Rates

Industry: Railroads

2020 Assessment Year

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
		End of Year Closing Stock Price	VL Historic EPS	VL Est EPS	VL Historic P/E Ratio	VL Est P/E Ratio	Ke Estimate - Earnings (Hist. P/E)	Ke Estimate - Earnings (Est. P/E)	VL Historic Cash Flow Per Share	VL Est Cash Flow Per Share	VL Historic P/CF Ratio	VL Est P/CF Ratio	Ke Estimate - Cash Flow (Hist. P/CF)	Ke Estimate - Cash Flow (Est. P/CF)	Market Value of Equity	Book Value of Equity	MTBR
Ticker	Company	Yahoo	Value Line	Value Line	C/D	C/E	1/F	1/G	Value Line	Value Line	C/J	C/K	1/L	1/M	Price x Shrs	10-K	P/Q
CSX	CSX Corp.	72.36	4.17	4.10	17.35	17.65	5.76%	5.67%	5.67	6.00	12.76	12.06	7.84%	8.29%	55,994	11,848	4.73
KSU	Kansas City South'n	153.16	6.94	8.00	22.07	19.15	4.53%	5.22%	9.55	10.55	16.04	14.52	6.24%	6.89%	14,721	4,423	3.33
NSC	Norfolk Southern	194.13	10.25	11.05	18.94	17.57	5.28%	5.69%	14.06	14.95	13.81	12.99	7.24%	7.70%	50,067	15,184	3.30
UNP	Union Pacific	180.79	8.39	9.35	21.55	19.34	4.64%	5.17%	11.25	11.90	16.07	15.19	6.22%	6.58%	125,125	18,128	6.90
Average					19.98	18.42	5.05%	5.44%				14.67	13.69	6.88%	7.37%	4.56	
Median					20.24	18.40	4.96%	5.44%				14.92	13.75	6.74%	7.29%	3.30	
High					22.07	19.34	5.76%	5.69%				16.07	15.19	7.84%	8.29%	4.73	
Low					17.35	17.57	4.53%	5.17%				12.76	12.06	6.22%	6.58%	3.30	
Selected							5.30%					7.20%				4.56	

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Debt Capitalization Rate

Industry: Railroads

2020 Assessment Year

(\$ in Millions)

A	B	C	D	E	F	G	H	I	J
Ticker	Company	YE 2019 Interest Exp.	YE 2018 MV LT Debt	YE 2018 BV LT Debt	YE 2019 MV LT Debt	YE 2019 BV LT Debt	2019 Avg MV LT Debt	2019 Current Yield	MTBR
	<i>Source</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>(D+F)/2</i>	<i>(C/H)</i>	<i>(F/G)</i>
CSX	CSX Corp.	737	14,914	14,757	18,503	16,238	16,709	4.41%	1.14
KSU	Kansas City South'n	116	2,661	2,689	3,536	3,246	3,099	3.74%	1.09
NSC	Norfolk Southern	604	12,203	11,145	14,806	12,196	13,505	4.47%	1.21
UNP	Union Pacific	1,050	21,900	22,391	27,200	25,200	24,550	4.28%	1.08
All Companies		2,507			64,045	56,880	57,862	4.33%	1.13
Average								4.23%	1.13
Median								4.34%	1.11
High								4.47%	1.21
Low								3.74%	1.08
Selected								4.25%	1.13

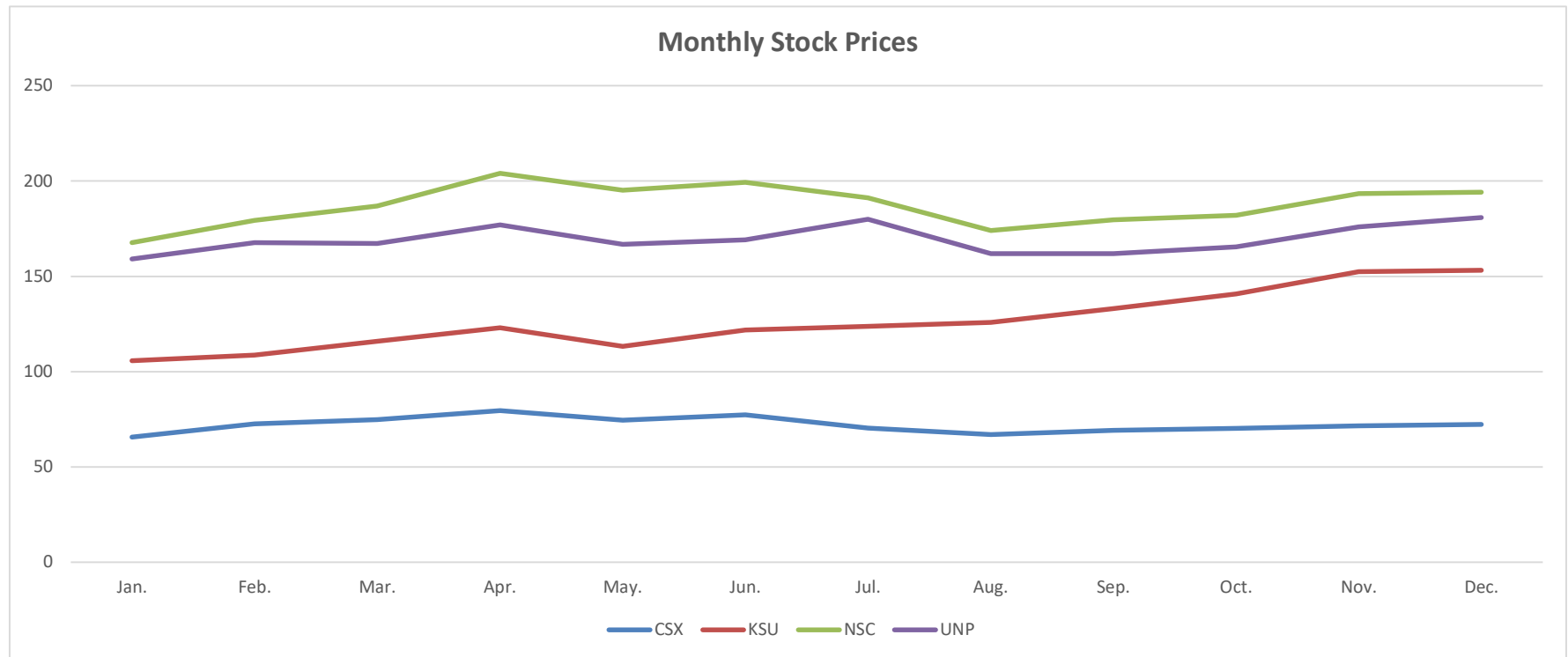
MONTANA DEPARTMENT OF REVENUE

Support of Stock Price - From YAHOO Finance

Industry: Railroads

2020 Assessment Year

		End of Period Closing Stock Price											
1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker	Company	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
CSX	CSX Corp.	65.7	72.67	74.82	79.63	74.47	77.37	70.4	67.02	69.27	70.27	71.54	72.36
KSU	Kansas City South'n	105.75	108.64	115.98	123.14	113.28	121.82	123.74	125.8	133.01	140.78	152.42	153.16
NSC	Norfolk Southern	167.74	179.3	186.89	204.02	195.14	199.33	191.12	174.05	179.66	182	193.5	194.13
UNP	Union Pacific	159.07	167.7	167.2	177.04	166.78	169.11	179.95	161.96	161.98	165.46	175.99	180.79



MONTANA DEPARTMENT OF REVENUE

Maintenance Capital Expenditures Estimate Based on Guideline Companies

Industry: Railroads

2020 Assessment Year

(\$ In Millions)

1	2	3	4	5	6	7	8	9	10	11	
A	B	C	D	E	F	G	H	I	J	K	L
Ticker	Company	Inflation	PP&E, Gross	PP&E, Gross	Average PP&E	Depreciation Expense	Average Life of Assets			Replacement Cost (RC)	RC as % of Depreciation
			Current Year	Previous Year				Note [1]	Note [1]	Note [1]	
		MTDOR (CPI)	10-K, Notes	10-K, Notes	(D+E)/2	10-K (CF)	F/G	C*H	1/(1+C)^H	G*I/(1-J)	K/G
CSX	CSX Corp.	2.20%	45,100	44,805	44,953	1,349	33.32	0.73	0.48	1,918	142.14%
KSU	Kansas City South'n	2.20%	11,496	11,270	11,383	351	32	0.71	0.49	494	140.97%
NSC	Norfolk Southern	2.20%	43,596	43,465	43,531	1,139	38	0.84	0.44	1,696	148.90%
UNP	Union Pacific	2.20%	74,246	72,805	73,526	2,216	33	0.73	0.49	3,146	141.95%
Average											143.49%
Median											142.05%
High											148.90%
Low											140.97%
Selected											143.50%

Notes:

[1] Cornell, B. & Gerger, R. (2017). Estimating Terminal Values with Inflation: The Inputs Matter-It Is Not a Formulaic Exercise. *Business Valuation Review*, Volume 36, Number 4, 117-123.